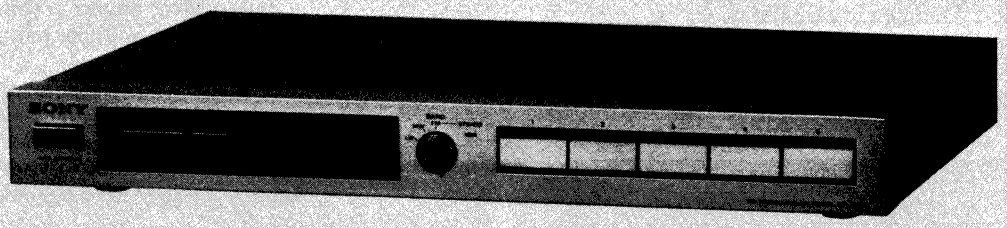
ST-JX35L

UK Model
AEP Model



FM STEREO/FM-AM TUNER

SPECIFICATIONS

FM tuner section

Tuning range 87.5 MHz - 108 MHz
Antenna terminals 300 ohms, balanced
75 ohms, unbalanced
West Germany only:
75 ohms, IEC connector
Intermediate frequency
10.7 MHz

	at 40 kHz deviation
Sensitivity	at 46 dB quieting 17.3 dBf, 4 μV (mono) 38.3 dBf, 45 μV (stereo)
Usable sensitivity	10.3 dBf, 1.8 μV (IHF) 1.7 μV (S/N = 26 dB)
Signal-to-noise ratio	76 dB (mono) 71 dB (stereo)
Harmonic distortion at 1 kHz	0.15% (mono) 0.3% (stereo)
IM distortion	0.15% (mono) 0.3% (stereo)
Separation at 1 kHz	45 dB
Frequency response	40 Hz - 12.5 kHz ±0.5 dB 30 Hz - 15 kHz $^{+0.5}_{-2.0}$ dB
Selectivity	at 300 kHz 70 dB

Capture ratio 1.0 dB
AM suppression ratio 54 dB
Image response ratio 50 dB
IF response ratio 90 dB
Spurious response ratio 70 dB
RF intermodulation 60 dB (IHF)
Muting threshold approx. 25 dBf, 10 μV
Output level/impedance at 75 kHz deviation 550 mV, 3.3 k ohms

— Continued on Page 2 —

SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY SHADING AND MARK ⚠ ON THE SCHEMATIC DIAGRAMS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

SONY®
SERVICE MANUAL

MICROFILM

ST-JX35L

MW/LW tuner section

		MW	LW
Tuning range		522 kHz – 1,602 kHz	153 kHz – 344 kHz
Antenna	ferrite-bar antenna	provided	provided
	external antenna terminal	provided	provided
Intermediate frequency		450 kHz	450 kHz
Usable sensitivity	ferrite-bar antenna	200 μV/m (at 999 kHz)	500 μV/m (at 230 kHz)
	external antenna	30 μV (at 999 kHz)	50 μV (at 230 kHz)
Signal-to-noise ratio		54 dB	54 dB
Harmonic distortion		0.3%	0.3%
Selectivity		35 dB (9 kHz)	35 dB (9 kHz)

General

System: PLL quartz-locked digital synthesizer system
FM stereo, FM/AM superheterodyne tuner

Power requirements: AEP model: 220 V ac (or 240 V ac adjustable by authorized Sony personnel), 50/60 Hz
UK model: 240 V ac (or 220 V ac adjustable by authorized Sony personnel), 50 Hz
Memory back-up power: 3 V dc, two batteries, IEC designation R6 (size AA)
Battery life: approx. 1 year with Sony SUM-3(NS) New Super batteries

Power consumption: 8 watts

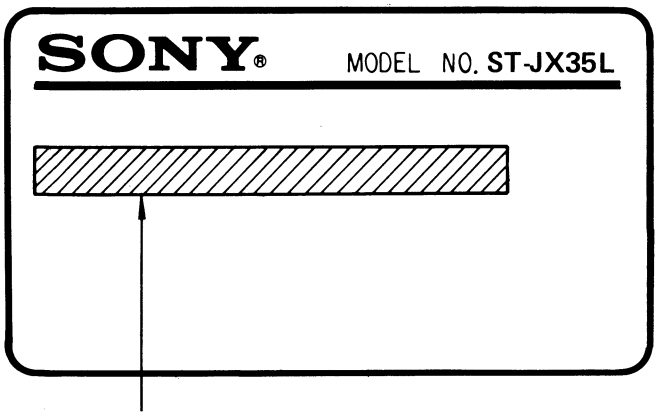
Dimensions: Approx. 430 × 55 × 298 mm (w/h/d) (17 × 2 1/4 × 11 3/4 inches) including projecting parts and controls

Weight: Approx. 2.9 kg (6 lbs 7 oz) net
Approx. 3.3 kg (7 lbs 5 oz) in shipping carton

FEATURES

The Sony ST-JX35L FM stereo/FM-AM tuner provides accurate and easy tuning with digital synthesizer system in a remarkably compact cabinet.

- The quartz-locked frequency-synthesizer system allows accurate and stable tuning that is not affected by temperature variations or long period usage.
- Each station preset button allows you to memorize 3 stations : one station for each band, and to select these memorized stations with the touch of a button.
- In the manual tuning mode, quick and accurate station selection is possible with an electronic digital readout on the frequency display window.
- The back-lighted LCD (liquid crystal display) window clearly shows the frequency received, band, tuning, muting, memory-standby and the selected station preset button number.
- The memory back-up batteries retain the memory contents when the power is turned off.
- An FM muting circuit is incorporated to eliminate any interstation noise.

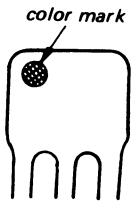


AEP, G-AEP model : 220V 50/60Hz 8W
For G-AEP model, FM 75Ω input terminal is coaxial type.
UK model : 240V 50/60Hz 8W

• IF OFFSET ADJUSTMENT (FM IF)

Diode Installations Depending on the Ceramic Filters (CF201 – 203)

This set employs three ceramic filters (CF201 – 203) which should have the same colour marking to identify their center frequency. Therefore FM IF offset adjustment by diodes (D604 – 605) installation is necessary to match the center frequency of the ceramic filters used with FM intermediate frequency.



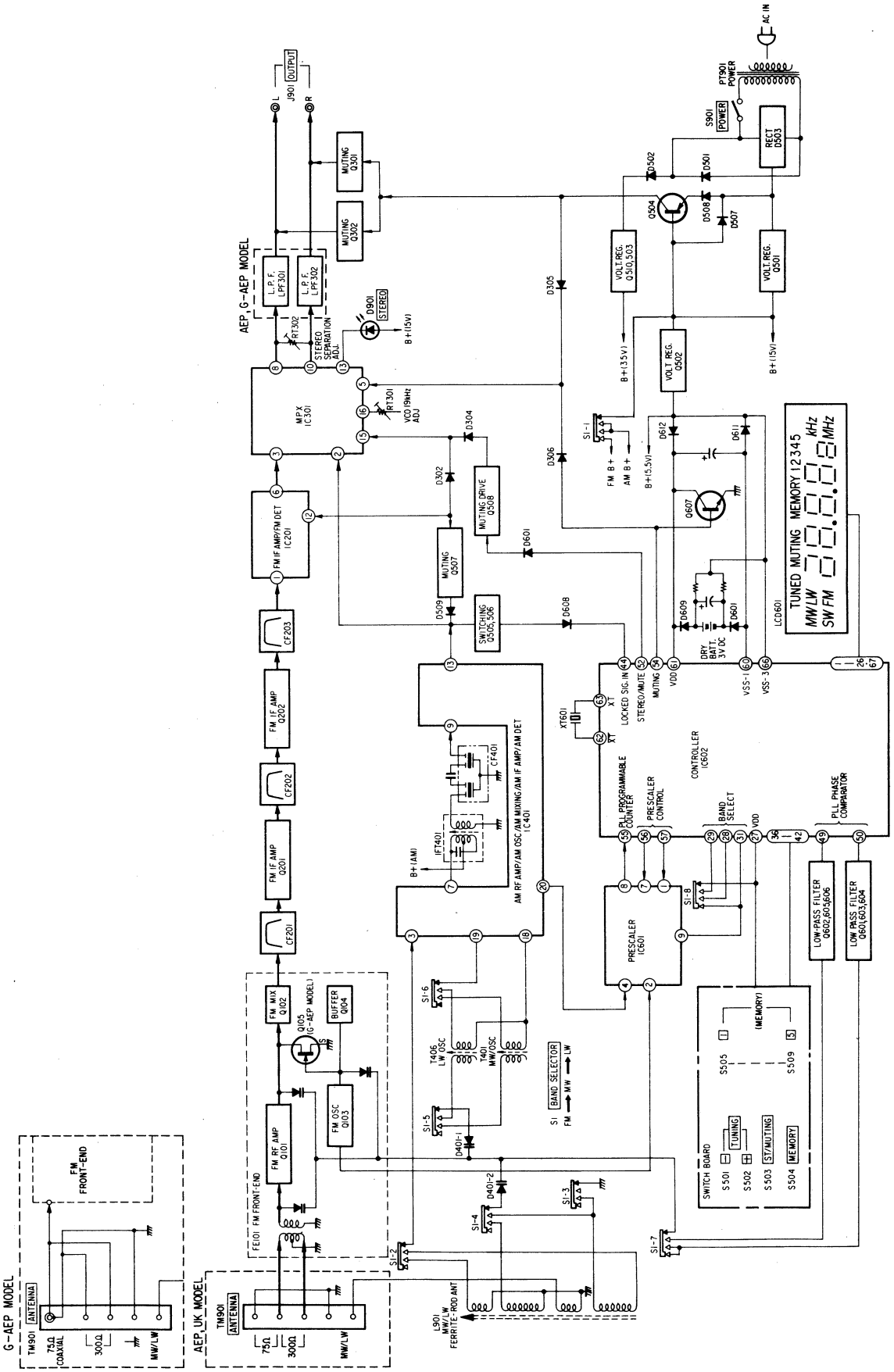
Ceramic filter		Diode installation		FM intermediate frequency (MHz)
Color mark	Center frequency (MHz)	D604	D605	
White	10.750	X	O	10.750
Red	10.700	X	X	10.700
Black	10.650	O	X	10.650

O: installed
X: not installed

FM intermediate frequency is determined by the three types as shown above. Ceramic filters of same center frequency, i.e., of same colour coding should be used for CF201 through CF203.

SECTION 1
OUTLINE

1. BLOCK DIAGRAM



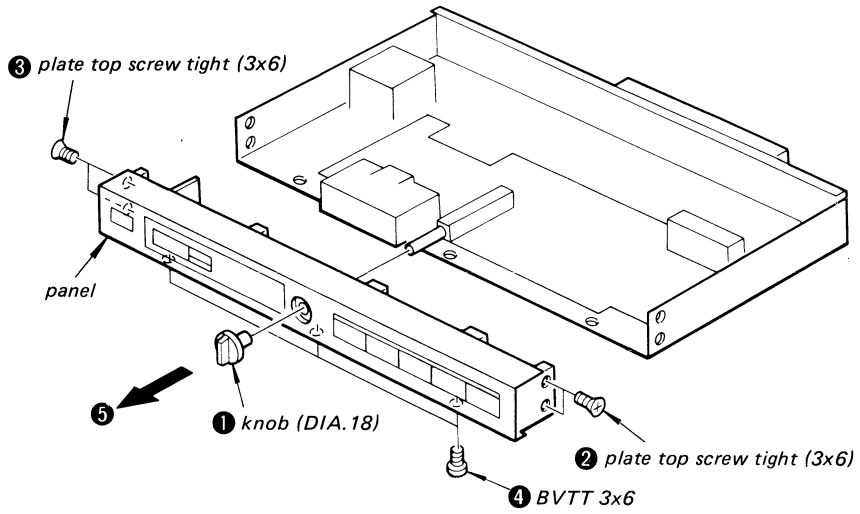
SECTION 2
DISASSEMBLY

- Follow the disassembly procedure in the numerical order given.

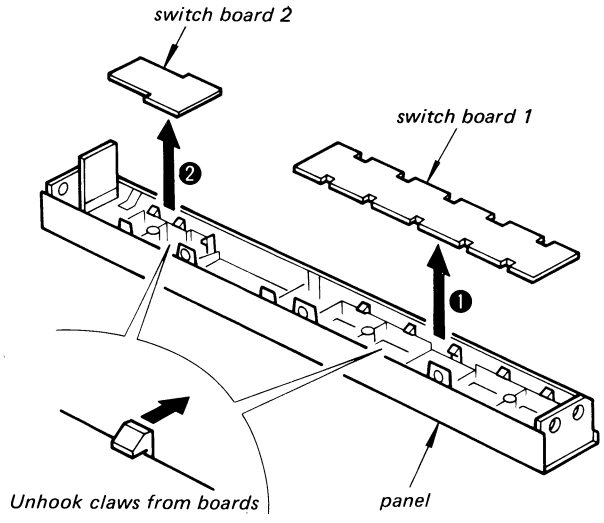
CASE

Remove four screws at each side of the case (M4S TIGHT), and the case.

PANEL



SWITCH BOARD 1/SWITCH BOARD 2



SECTION 3
ADJUSTMENTS

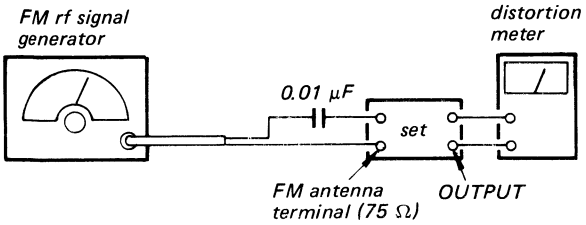
FM SECTION

FM Discriminator Alignment

Setting:

BAND SELECTOR switch . . . . .FM
STEREO/MUTING switch . . . . .OFF

Procedure:

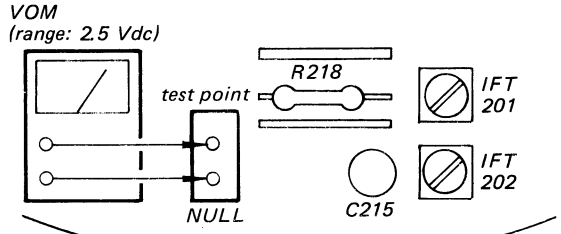


Carrier frequency: 98 MHz
Output level: 1 mV (60 dB)
Modulation: 1 kHz, 40 kHz deviation (100%)

1. Tune the set to 98MHz.
2. Adjust IFT201 for 0 V reading on the VOM. . . . NULL Adjustment

   Note: When the ceramic filter is replaced, these adjustments should be made (See page 3).

3. Adjust IFT201 for a minimum reading on the distortion meter. . . . . Distortion Adjustment

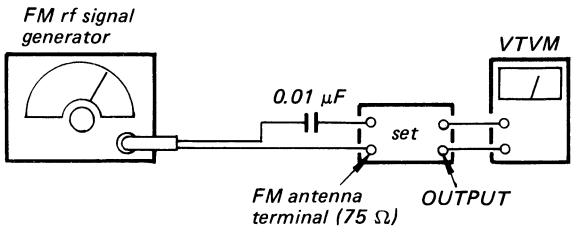


FM Muting Level Adjustment

Setting:

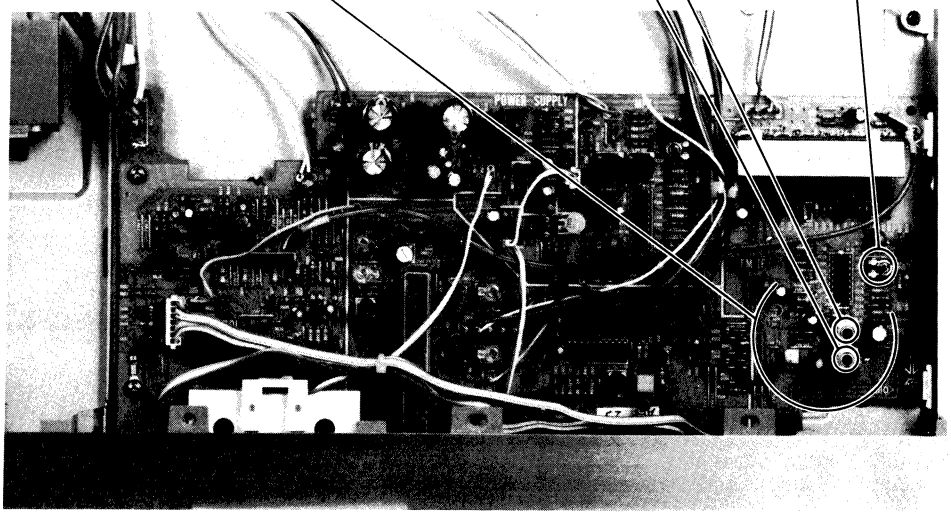
BAND SELECTOR switch . . . . .FM
STEREO/MUTING switch . . . . .ON

Procedure:



Carrier frequency: 98 MHz
Modulation: 1 kHz, 40 kHz deviation (100%)
Output level: 17.9 µV (25 dB)

1. Tune the set to 98 MHz.
2. Adjust RT201 for a point the VTVM reading just drops to 0 V.

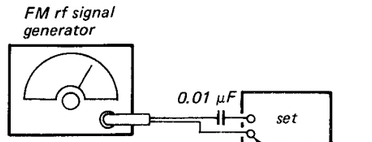


VCO Adjustment

Setting: BAND SELECTOR switch: FM
STEREO/MUTING switch: ON

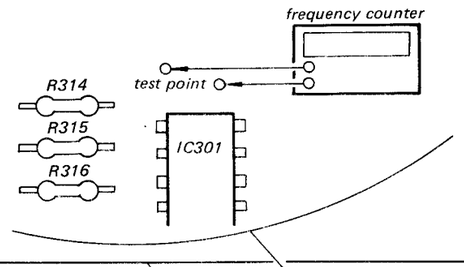
A) Regular Method

Procedure:



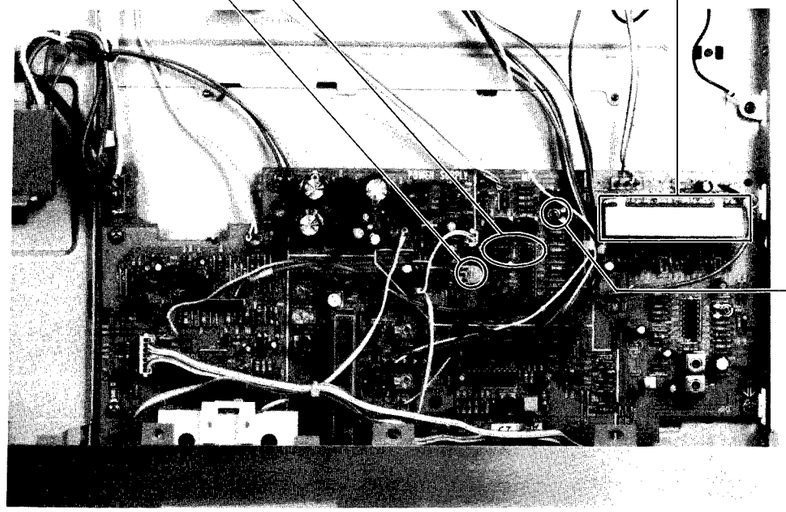
Carrier frequency: 98 MHz
Modulaton: no modulation
Output level: 1 mV (60 dB)

1. Tune the set to 98 MHz.
2. Adjust RT301 for 19 kHz ± 50 Hz on the counter.



RT301

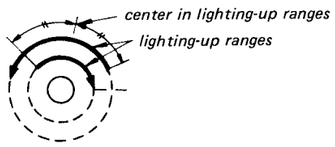
The FM front-end is carefully adjusted at the factory and is supplied as one whole block for replacement.



B) Simple Method

Procedure:

1. Tune the set to the FM stereo broadcasting signal.
2. Turn RT301 clockwise or counterclockwise and memorize the lighting-up range of the stereo lamp.
3. Secure RT301 at the center of the lighting-up range of both turns as shown below.

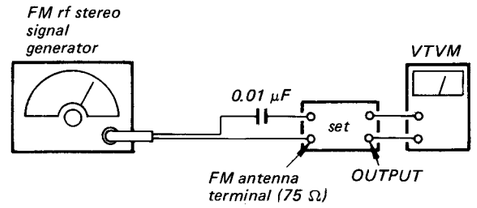


FM Stereo Separation Adjustment

Setting:

BAND SELECTOR switch . . . . . .FM
STEREO/MUTING switch . . . . . .ON (STEREO)

Procedure:



Carrier frequency: 98 MHz
Output level: 1mV (60 dB)
Modulation: Stereo

Audio (1 kHz): 16.25 kHz deviation
Pilot (19 kHz): 7.5 kHz deviation
Sub-channel (38 kHz) 16.25 kHz deviation

FM stereo signal generator output channel	VTVM connection	VTVM reading (dB)
L-CH	L-CH	Ⓐ
R-CH	L-CH	Ⓑ Adjust RT302 for minimum reading
R-CH	R-CH	Ⓒ
L-CH	R-CH	Ⓓ Adjust RT302 for minimum reading

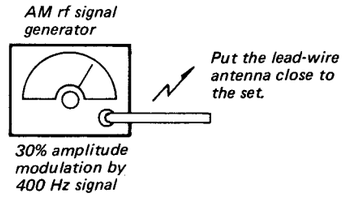
L-CH Stereo separation: Ⓐ – Ⓑ
R-CH Stereo separation: Ⓒ – Ⓓ

The separations of both channels should be equal.

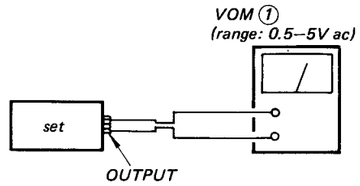
MW/LW SECTION

Setting:

BAND SELECTOR switch: MW/LW

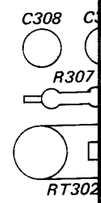


LW FREQUENCY COVERAGE	
reading on VOM ②	18.5 ± 0.
frequency indication	344 k
adjustment part	CT40



- Repeat the procedures in each adjustment several times, and the frequency coverage and tracking adjustments should be finally done by the trimmer capacitors.

MW FREQUENCY COVERAGE ADJUSTMENT		
reading on VOM ②	frequency indication	adjustment part
22 ± 0.2 V	1,602 kHz	CT401
1.6 ± 0.1 V	522 kHz	T401



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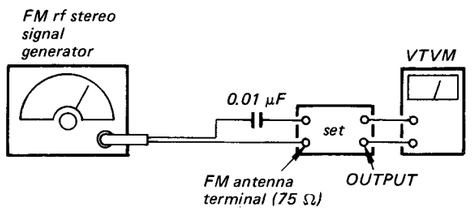
FM Stereo Separation Adjustment

Setting:

BAND SELECTOR switch . . . . . .FM
STEREO/MUTING switch . . . . . .ON (STEREO)

Procedure:



Carrier frequency: 98 MHz
Output level: 1mV (60 dB)
Modulation: Stereo

Audio (1 kHz): 16.25 kHz deviation
Pilot (19 kHz): 7.5 kHz deviation
Sub-channel (38 kHz) 16.25 kHz deviation

FM stereo signal generator output channel	VTVM connection	VTVM reading (dB)
L-CH	L-CH	Ⓐ
R-CH	L-CH	Ⓑ Adjust RT302 for minimum reading
R-CH	R-CH	Ⓒ
L-CH	R-CH	Ⓓ Adjust RT302 for minimum reading

L-CH Stereo separation: Ⓐ – Ⓑ
R-CH Stereo separation: Ⓒ – Ⓓ

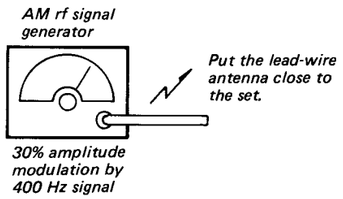
The separations of both channels should be equal.

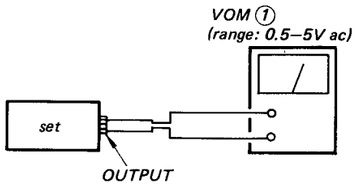
RT302

MW/LW SECTION

Setting:

BAND SELECTOR switch: MW/LW





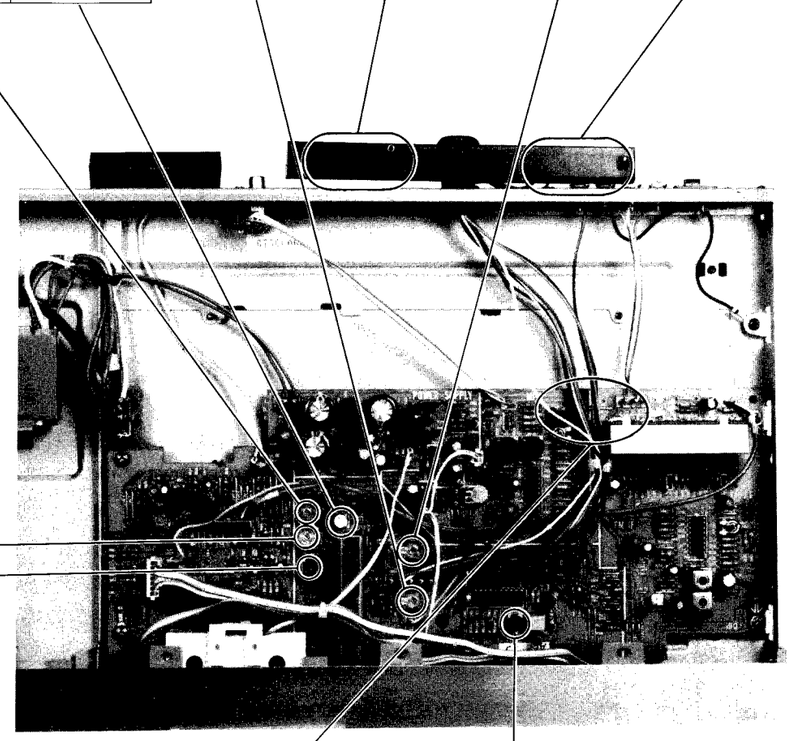
- Repeat the procedures in each adjustment several times, and the frequency coverage and tracking adjustments should be finally done by the trimmer capacitors.

LW FREQUENCY COVERAGE ADJUSTMENT		
reading on VOM ②	18.5 ± 0.2 V	2.2 ± 0.1 V
frequency indication	344 kHz	153 kHz
adjustment part	CT407	T406

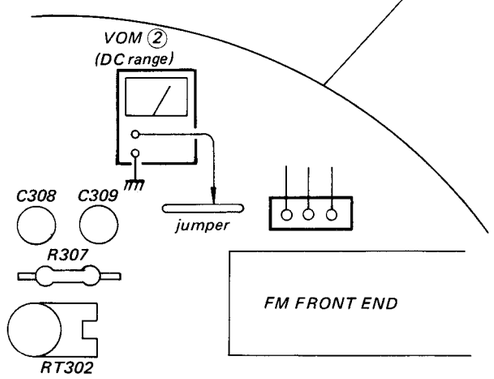
MW TRACKING ADJUSTMENT	
Adjust for a maximum reading on VOM ①	
1,404 kHz	603 kHz
CT404	L901

LW TRACKING ADJUSTMENT	
Adjust for a maximum reading on VOM ①	
310 kHz	170 kHz
CT408	L901

MW FREQUENCY COVERAGE ADJUSTMENT		
reading on VOM ②	frequency indication	adjustment part
22 ± 0.2 V	1,602 kHz	CT401
1.6 ± 0.1 V	522 kHz	T401



IFT401
450 kHz
Adjust for a maximum reading on VOM ①
AM IF ALIGNMENT

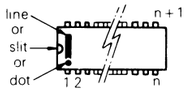


SECTION 4
DIAGRAMS

4-1. MOUNTING DIAGRAM
– Conductor Side –

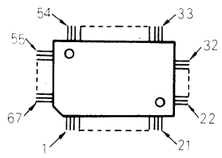
Semiconductor lead layouts

LA1231
LA1245
LA3390

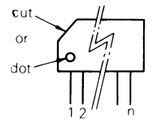


(Top view)

TC9300F-007

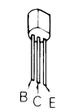


TD6109P

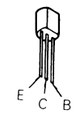


2SA1048-GR
2SC2458

2SC710-14

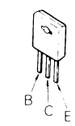


2SC945-P
2SC1362-48

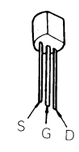


2SD774

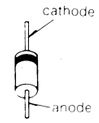
2SD1310



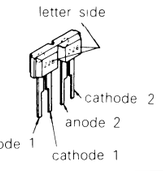
2SK30A-GR3



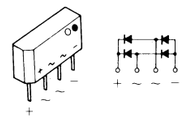
10E2
1S953-7
HZ6B2L
HZ15-2L
HZ302L



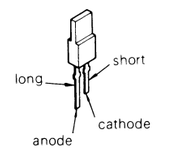
KV1226



S1VB20

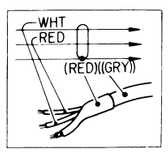


SLP151B

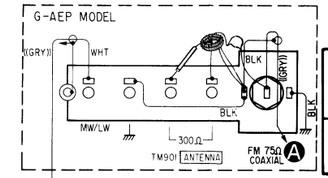


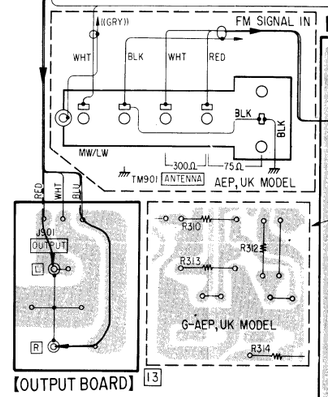
Note:

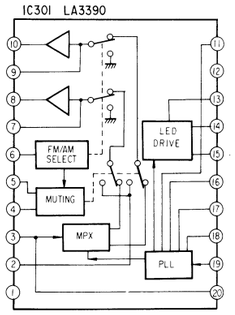
- Color code of sleeving over the end of the jacket.

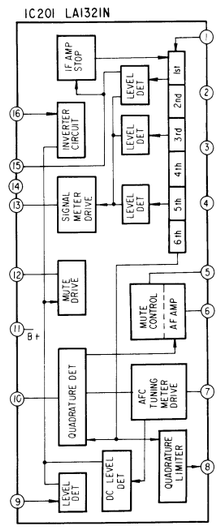


- ⊶: parts extracted from the component side.
- ⊡⊷: indicates side identified with part number.
- ※ : nonflamable resistors except for AEP, G-AEP model (R213, 225, 301, 403 and R405).
- ▒▒ : B+ pattern
- ▬▶▬ : signal path
- ▬·▶ : L-CH signal path
- ▬··▶ : R-CH signal path

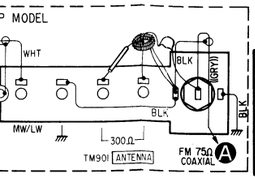








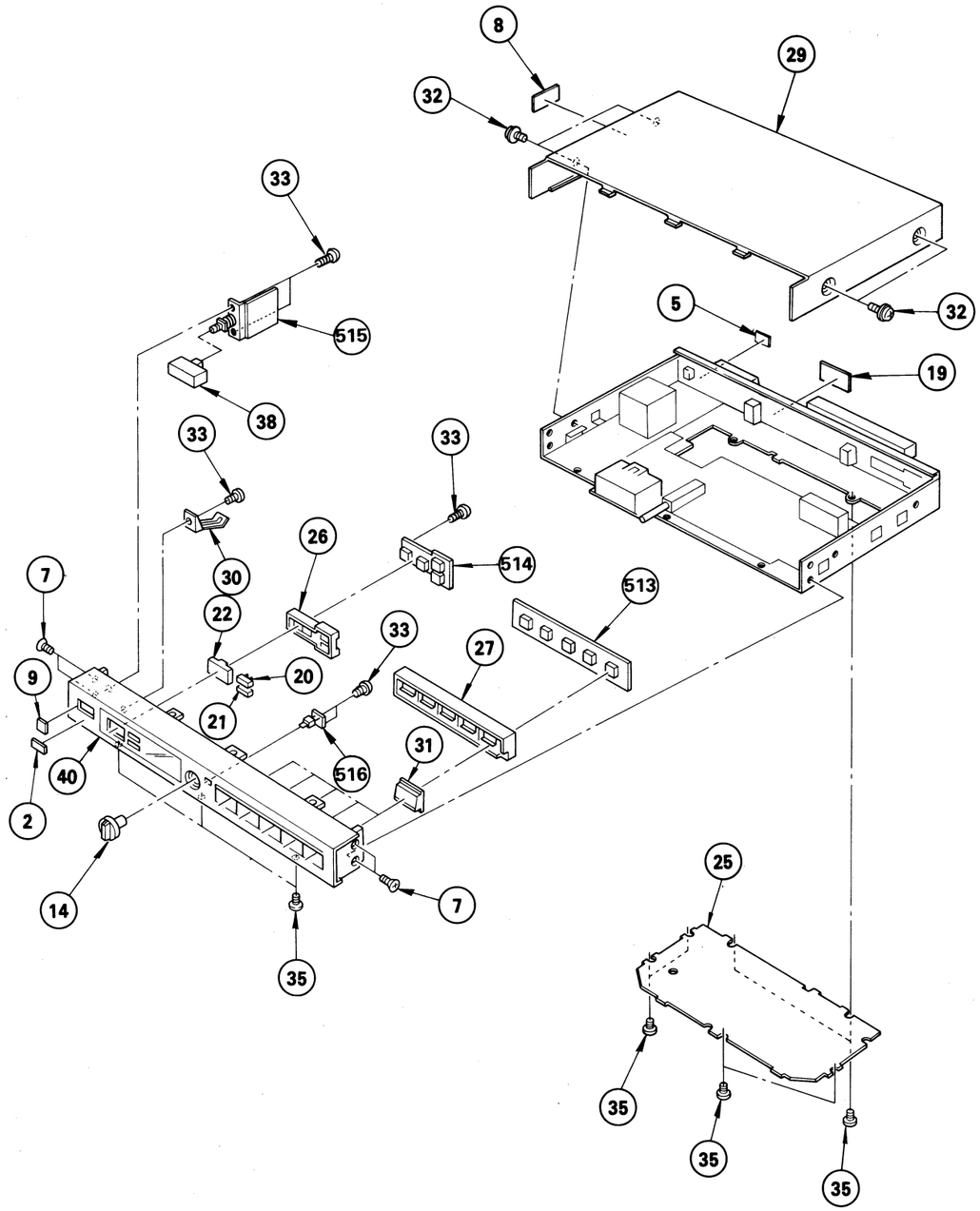
P MODEL



| | | |

SECTION 5
EXPLODED VIEWS AND PARTS LIST

(1)



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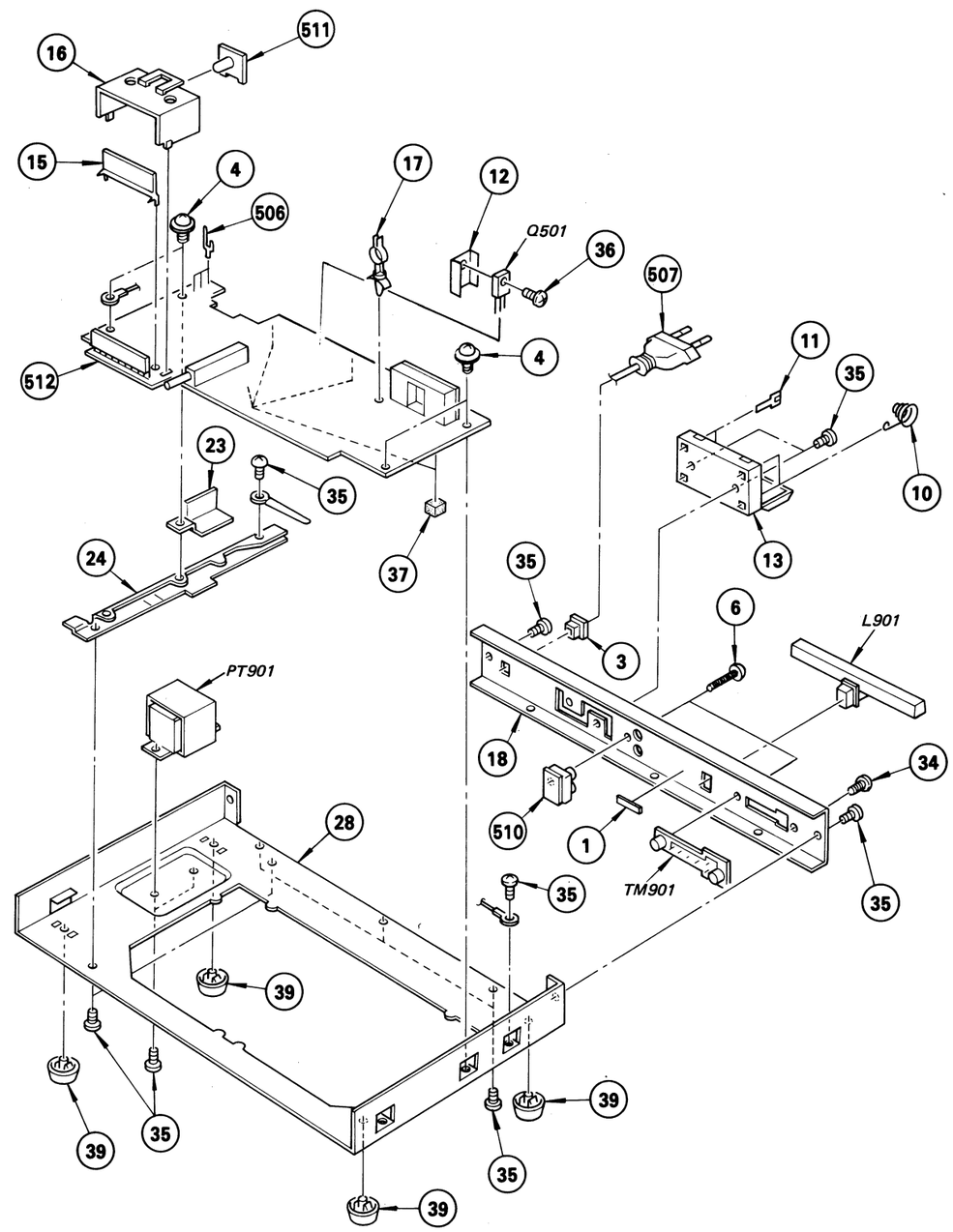

GENERAL

No.	Part No.
1	3-701-030-00
2	3-701-690-00
3	3-703-244-00
4	3-703-249-01
5	3-703-396-00
6	3-703-473-00
7	3-703-583-00
8 ♦	3-703-677-00
9	3-703-713-01
10	3-883-424-00
11	3-883-428-00
12 ♦	4-875-327-01
13	4-875-530-00
14	4-881-520-01
15	4-884-848-00
16 ♦	4-884-856-00
17 ♦	4-888-226-00
18 ♦	4-889-201-21
18 ♦	4-889-201-31
19	4-889-206-01
19	4-889-206-21
19	4-889-209-00
20	4-889-211-01
21	4-889-211-11
22	4-889-212-00
23	4-889-213-00
24 ♦	4-889-214-00
25 ♦	4-889-215-00
26	4-889-216-00
27	4-889-217-00
28 ♦	4-889-219-01
29	4-889-221-00
30 ♦	4-889-222-00
31	4-889-317-11
32	4-889-321-01
33	7-685-534-19
34	7-685-646-71
35	7-685-871-01
36	7-685-872-01
37	9-911-842-XX
38	X-4875-108-0
39	X-4875-123-1
40	X-4889-203-1

NOTE:
- Items with no p
  cription are no
  are seldom requ
- Items marked "
  they are seldom
  service. Some
  pated when orde
- Due to standard
  numbers (Δ-ΔΔΔ-
  may be differen
  set.
- If there are two
  set such as a st
  typical circuit
  capacitors and r
  circuits may be

GENERAL SECTION

No.	Part No.	Description
1	3-701-030-00	LABEL, SERIAL NUMBER
2	3-701-690-00	(UK).....LABEL (MADE IN JAPAN)
3	3-703-244-00	BUSHING, CORD
4	3-703-249-01	SCREW, S TIGHT, +PTTWH 3X6
5	3-703-396-00	(UK).....LABEL, CAUTION
6	3-703-473-00	SCREW, TERMINAL, +BV TYPE2
7	3-703-583-00	TIGHT (3X6), PLATE TAP
8 ♦	3-703-677-00	(UK).....LABEL, CAUTION, MAIN, NEW UL
9	3-703-713-01	STICKER, SONY SYMBOL (12)
10	3-883-424-00	SPRING
11	3-883-428-00	PLATE, TERMINAL (POSITIVE)
12 ♦	4-875-327-01	HEAT SINK
13	4-875-530-00	CASE, BATTERY
14	4-881-520-01	KNOB (DIA. 18)
15	4-884-848-00	ILLUMINATOR (ST)
16 ♦	4-884-856-00	HOUSE, LAMP
17 ♦	4-888-226-00	CLIP, STAND-OFF
18 ♦	4-889-201-21	(AEP,UK)...PLATE, JACK
18 ♦	4-889-201-31	(G-AEP)....PLATE, JACK
19	4-889-206-01	(G-AEP)...LABEL, MODEL NUMBER (AEP)
19	4-889-206-21	(AEP).....LABEL, MODEL NUMBER (AEP)
19	4-889-209-00	(UK).....LABEL, MODEL NUMBER (UK)
20	4-889-211-01	KNOB (18X4), SQUARE
21	4-889-211-11	KNOB (18X4), SQUARE
22	4-889-212-00	KNOB (32X12), SQUARE
23	4-889-213-00	INSULATOR
24 ♦	4-889-214-00	FRAME
25 ♦	4-889-215-00	PLATE, BOTTOM
26	4-889-216-00	HINGE (B)
27	4-889-217-00	HINGE (A)
28 ♦	4-889-219-01	CHASSIS
29	4-889-221-00	CASE
30 ♦	4-889-222-00	PLATE, GROUND
31	4-889-317-11	KNOB (16XL), SQUARE
32	4-889-321-01	SCREW, M4S TIGHT
33	7-685-534-19	SCREW +BTP 2.6X8 TYPE2 N-S
34	7-685-646-71	SCREW +BVTP 3X8 TYPE2 IT-3
35	7-685-871-01	SCREW +BVTT 3X6 (S)
36	7-685-872-01	SCREW +BVTT 3X8 (S)
37	9-911-842-XX	RETAINER, PC BOARD
38	X-4875-108-0	KNOB ASSY, POWER
39	X-4875-123-1	FOOT ASSY, MF
40	X-4889-203-1	PANEL ASSY

ACCESSORY & PACKING MATERIAL

No.	Part No.	Description
81	1-501-161-00	ANTENNA,FEEDER
82	1-528-027-11	BATTERY, NEW SUPER (SUM-3)(NS)
83	1-551-734-11	CORD, CONNECTION
84	3-701-630-00	BAG, POLYETHYLENE
85	3-773-513-11	(AEP,UK)...MANUAL, INSTRUCTION
86	3-773-513-41	(AEP,G-AEP)...MANUAL, INSTRUCTION
87	4-879-798-00	SHEET, PROTECTION
88	4-881-536-00	CUSHION (UPPER)
89	4-881-537-00	CUSHION (LOWER)
90	4-889-225-00	INDIVIDUAL CARTON

NOTE:
- Items with no part number and no description are not stocked because they are seldom required for routine service.
- Items marked " ♦ " are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- Due to standardization, parts with part numbers (Δ-ΔΔΔ-ΔΔΔ-XX or Δ-ΔΔΔΔ-ΔΔΔ-X) may be different from those used in the set.
- If there are two or more same circuitsin a set such as a stereophonic machine, only typical circuit parts may be indicated and capacitors and resistors in other same circuits may be omitted.

CAPACITORS:
MF:μF, PF:μμF.

RESISTORS
- All resistors are in ohms.
- F : nonflammable

COILS
- MMH : mH, UH : μH

SEMICONDUCTORS
In each case, U : μ, for example:
UA···: μA···, UPA···: μPA···, UPC···: μPC,
UPD···: μPD···

ELECTRICAL PARTS

Ref.No.	Part No.	Description			
501 ♦	1-508-808-00	14MM BASE POST			
502 ♦	1-508-829-12	H TYPE BASE POST			
503 ♦	1-535-115-00	TERMINAL			
504 ♦	1-535-116-00	TERMINAL			
505 ♦	1-535-118-00	TERMINAL			
506 ♦	1-535-416-00	TERMINAL			
507 ⚠	1-551-427-11	(AEP,G-AEP)...CORD, POWER, EULO PLUG			
507 ⚠	1-556-562-00	(UK).....CORD, POWER			
508 ♦	1-560-060-00	PIN, CONNECTOR 2P			
509 ♦	1-560-338-00	PIN, CONNECTOR 7P			
510 ♦	1-609-848-00	PC BOARD, OUTPUT			
511 ♦	1-609-849-00	PC BOARD, LAMP			
512 ♦	1-609-852-00	PC BOARD, TUNER			
512 ♦	A-4351-347-A	(AEP).....MOUNTED PCB, TUNER			
512 ♦	A-4351-348-A	(G-AEP)...MOUNTED PCB, TUNER			
512 ♦	A-4351-355-A	(UK).....MOUNTED PCB, TUNER			
513 ♦	1-610-699-00	PC BOARD, SW-1			
514 ♦	1-610-700-00	PC BOARD, SW-2			
515 ♦	1-610-701-00	PC BOARD, POWER SW			
516	1-610-746-00	PC BOARD, LED			
C201	1-161-263-00	CERAMIC	22PF	5%	50V
C202	1-161-494-00	CERAMIC	0.022MF	30%	25V
C203	1-161-494-00	CERAMIC	0.022MF	30%	25V
C205	1-161-494-00	CERAMIC	0.022MF	30%	25V
C206	1-123-320-00	ELECT	100MF	20%	16V
C207	1-101-005-00	CERAMIC	0.022MF		50V
C208	1-161-494-00	CERAMIC	0.022MF	30%	25V
C209	1-161-494-00	CERAMIC	0.022MF	30%	25V
C210	1-161-494-00	CERAMIC	0.022MF	30%	25V
C211	1-161-315-00	(G-AEP)....CERAMIC	220PF	10%	50V
C212	1-161-265-00	(AEP,UK)...CERAMIC	33PF	5%	50V
C212	1-161-321-00	(G-AEP)....CERAMIC	680PF	10%	50V
C213	1-123-380-00	ELECT	1MF	20%	50V
C214	1-161-494-00	CERAMIC	0.022MF	30%	25V
C215	1-123-380-00	ELECT	1MF	20%	50V
C216	1-123-320-00	ELECT	100MF	20%	16V
C217	1-161-494-00	CERAMIC	0.022MF	30%	25V
C218	1-161-494-00	CERAMIC	0.022MF	30%	25V
C219	1-161-494-00	CERAMIC	0.022MF	30%	25V
C220	1-123-380-00	ELECT	1MF	20%	50V
C221	1-161-494-00	CERAMIC	0.022MF	30%	25V
C222	1-123-356-00	ELECT	10MF	20%	16V
C223	1-161-323-00	CERAMIC	0.001MF	10%	50V
C225	1-161-494-00	CERAMIC	0.022MF	30%	25V

ELECTRICAL PARTS

Ref.No.	Part No.	Description			
C226	1-123-320-00	ELECT	100MF	20%	16V
C227	1-101-005-00	(G-AEP)....CERAMIC	0.022MF		50V
C301	1-123-356-00	ELECT	10MF	20%	16V
C302	1-123-320-00	ELECT	100MF	20%	16V
C303	1-123-328-00	ELECT	4.7MF	20%	25V
C304	1-161-320-00	CERAMIC	560PF	10%	50V
C305	1-161-320-00	CERAMIC	560PF	10%	50V
C306	1-161-330-00	CERAMIC	0.01MF	30%	25V
C307	1-161-330-00	CERAMIC	0.01MF	30%	25V
C308	1-123-328-00	ELECT	4.7MF	20%	25V
C309	1-123-328-00	ELECT	4.7MF	20%	25V
C310	1-161-326-00	(AEP,G-AEP)...CERAMIC	0.0022MF	30%	50V
C311	1-161-326-00	(AEP,G-AEP)...CERAMIC	0.0022MF	30%	50V
C312	1-101-006-00	CERAMIC	0.047MF		50V
C313	1-123-353-00	ELECT	2.2MF	20%	50V
C314	1-123-354-00	ELECT	3.3MF	20%	50V
C315	1-123-380-00	ELECT	1MF	20%	50V
C316	1-104-077-00	POLYSTYRENE	0.001MF	5%	50V
C401	1-161-494-00	CERAMIC	0.022MF	30%	25V
C402	1-161-494-00	CERAMIC	0.022MF	30%	25V
C403	1-161-494-00	CERAMIC	0.022MF	30%	25V
C404	1-161-494-00	CERAMIC	0.022MF	30%	25V
C405	1-161-494-00	CERAMIC	0.022MF	30%	25V
C406	1-123-328-00	ELECT	4.7MF	20%	25V
C407	1-161-494-00	CERAMIC	0.022MF	30%	25V
C408	1-161-267-00	CERAMIC	47PF	5%	50V
C409	1-123-356-00	ELECT	10MF	20%	16V
C410	1-161-494-00	CERAMIC	0.022MF	30%	25V
C411	1-161-323-00	CERAMIC	0.001MF	10%	50V
C412	1-123-319-00	ELECT	47MF	20%	16V
C413	1-123-328-00	ELECT	4.7MF	20%	25V
C414	1-123-354-00	ELECT	3.3MF	20%	50V
C415	1-161-494-00	CERAMIC	0.022MF	30%	25V
C416	1-123-351-00	ELECT	0.47MF	20%	50V
C417	1-161-494-00	CERAMIC	0.022MF	30%	25V
C418	1-101-005-00	CERAMIC	0.022MF		50V
C419	1-161-329-00	CERAMIC	0.0068MF	30%	25V
C420	1-101-005-00	CERAMIC	0.022MF		50V
C421	1-101-005-00	CERAMIC	0.022MF		50V
C422	1-103-716-00	POLYSTYRENE	430PF	5%	50V
C425	1-161-301-00	CERAMIC	10PF	5%	50V
C431	1-103-706-00	POLYSTYRENE	160PF	5%	50V
C444	1-161-330-00	CERAMIC	0.01MF	30%	25V
C453	1-161-053-00	CERAMIC	0.0015MF	30%	50V
C454	1-102-120-00	CERAMIC	0.0018MF	10%	50V
C455	1-161-267-00	CERAMIC	47PF	5%	50V

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CAPACITORS:
MF:μF, PF:μμF.

RESISTORS
- All resistors are in ohms.
- F : nonflammable

COILS
- MMH : mH, UH : μH

SEMICONDUCTORS
In each case, U : μ, for example:
UA···: μA···, UPA···: μPA···, UPC···: μPC,
UPD···: μPD···

4-2. SCHEMATIC DIAGRAM

【TUNER BOARD】

AEP, UK MODEL TM901 ANTENNA — 75Ω / 300Ω / MW/LW

G-AEP Model — FM 75Ω COAXIAL, TM901 ANTENNA, 300Ω, MW/LW, 0.022, L101

FE101 FM FRONT-END — Q101 2SC710-13 FM IF AMP; Q102 2SC710-13 FM IF AMP; IFT101; G-AEP MODEL; AEP, UK MODEL

Q103 2SC1362-48 — Q104 2SC1362-48 — Q105 2SC1362-48

IC201 LA1231 FM IF AMP, FM DET — AEP, G-AEP model; UK model; REG CIRCUIT; QUADRATURE LIMITER; QUADRATURE DET; LEVEL DET; IF AMP STOP; SIGNAL METER DRIVE; INVERTER CIRCUIT; MUTE DRIVE; DC LEVEL DET; MUTING LEVEL; IFT201; FM DISCRI 10.7MHz

D401-1,2 KV1226 — L901 MW/LW FERRITE-ROD ANT — MW TRACKING 1404kHz / 603kHz — LW TRACKING 170kHz / 310kHz — CT404 20p — CT408 20p

L401 220μH — C454 0.0018 — R417 1M — C453 0.0015

MW FREQUENCY COVERAGE 1602kHz | 522kHz — LW FREQUENCY COVERAGE 344kHz | 153kHz

T401 MW OSC — T406 LW OSC

Q602 2SK30A-GR2 LOW-PASS FILTER

IC401 LA1245 AM IF AMP, AM OSC, MIXING, AM DET — AM RF AMP; AM OSC; AM MIXING; AM IF AMP; AM DET; METER DRIVE; AGC; IFT401 AM IF 450kHz

IC601 TD6109P PRESCALER — 1/4 DIVIDER; 1/10,1/11,1/20,1/21 SELECT DIVIDER; VOLT. REG.

Q601 2SK30A-GR3; Q603,604 2SC1362-48 — LOW-PASS FILTER

Q605,606 2SC1362-48 LOW-PASS FILTER

D201, 401 IS953-7 — D402 — D302

Q505,506 SWITCH — Q505 — Q506 — Q507 — D509 IS953-7 — D511-513 IS953-7

Q507 2SC945 MUTING

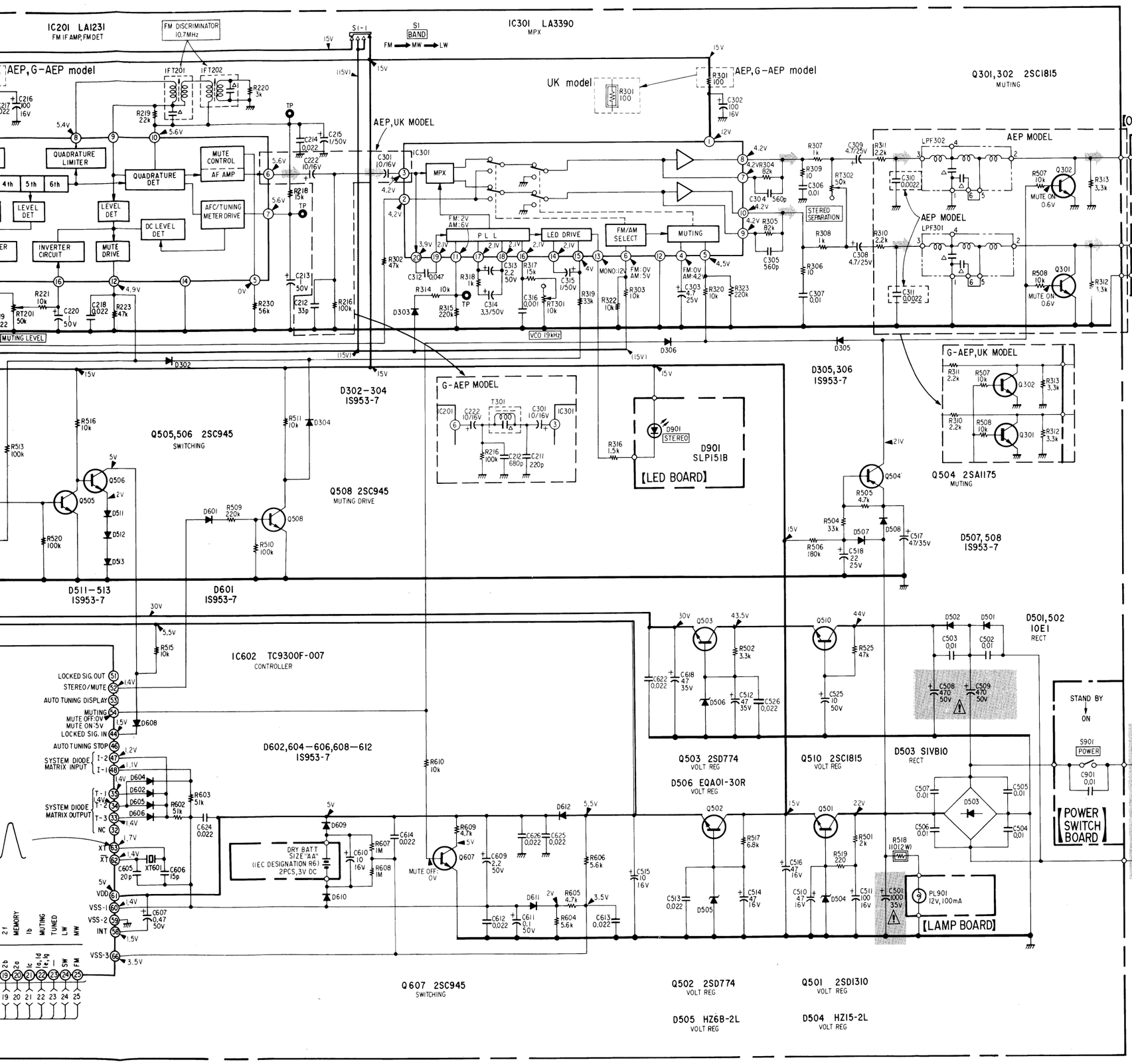
IC602 — IF IN; PLL PROGRAMMABLE COUNTER; PRESCALER CONTROL; BAND SELECT; PLL PHASE COMPARATOR; LOCKED SIG.OUT; STEREO/MUTE; AUTO TUNING DISPLAY; MUTING; AUTO TUNING STOP; SYSTEM DIODE MATRIX INPUT; SYSTEM DIODE MATRIX OUTPUT; XT; XT601; VDD; VSS-1; VSS-2; INT; VSS-3; COM1; COM2

LCD601 — TUNED MUTING MEMORY 1 2 3 4 5 — MWLW SWFM — kHz MHz

【SWITCH BOARD2】 — S501 TUNING; S502; S503 MEMORY; S504 ST/MUTING

【SWITCH BOARD1】 — S505 1; S506 2; S507 3; S508 4; S509 5

S1 BAND: FM → MW → LW



Note:

- All capacitors are in μF unless otherwise noted. pF : μμF 50WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in ohms, ¼W unless otherwise noted. kΩ : 1000Ω, MΩ : 1000kΩ
- : nonflammable resistor.
- △ : internal component.
- : panel designation.
- : adjustment for repair.
- : B+ bus.
- Voltages are dc with respect to ground unless otherwise noted.
- Readings are taken under no-signal (detuned) conditions with a VOM.
  no mark: FM
  ( ): AM
- Voltage variations may be noted due to normal production tolerances.
- Switch

Ref. No.	Switch	Position
S1	BAND	FM
S501	TUNING –	OFF
S502	TUNING +	OFF
S503	ST/MUTING	OFF
S504	MEMORY	OFF
S505–9	1–5	OFF
S901	POWER	STAND BY

- : signal path

Note: Voltages are measured with a VOM (50kΩ/V).

Note: The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

ELECTRICAL PARTS

Ref.No.	Part No.	Description			
C501 ⚠	1-123-349-00	ELECT	1000MF	20%	35V
C502	1-101-004-00	CERAMIC	0.01MF		50V
C503	1-101-004-00	CERAMIC	0.01MF		50V
C504	1-101-004-00	CERAMIC	0.01MF		50V
C505	1-101-004-00	CERAMIC	0.01MF		50V
C506	1-101-004-00	CERAMIC	0.01MF		50V
C507	1-101-004-00	CERAMIC	0.01MF		50V
C508 ⚠	1-123-363-00	ELECT	470MF	20%	50V
C509 ⚠	1-123-363-00	ELECT	470MF	20%	50V
C510	1-123-319-00	ELECT	47MF	20%	16V
C511	1-123-320-00	ELECT	100MF	20%	16V
C512	1-123-359-00	ELECT	47MF	20%	35V
C513	1-161-494-00	CERAMIC	0.022MF	30%	25V
C514	1-123-319-00	ELECT	47MF	20%	16V
C515	1-123-356-00	ELECT	10MF	20%	16V
C516	1-123-319-00	ELECT	47MF	20%	16V
C517	1-123-359-00	ELECT	47MF	20%	35V
C518	1-123-330-00	ELECT	22MF	20%	25V
C525	1-123-356-00	ELECT	10MF	20%	50V
C526	1-101-005-00	CERAMIC	0.022MF		50V
C602	1-161-494-00	CERAMIC	0.022MF	30%	25V
C603	1-161-330-00	CERAMIC	0.01MF	30%	25V
C604	1-161-330-00	CERAMIC	0.01MF	30%	25V
C605	1-101-974-00	CERAMIC	20PF	5%	50V
C606	1-102-851-00	CERAMIC	15PF	5%	50V
C607	1-123-351-00	ELECT	0.47MF	20%	50V
C608	1-101-005-00	CERAMIC	0.022MF		50V
C609	1-123-353-00	ELECT	2.2MF	20%	50V
C610	1-123-356-00	ELECT	10MF	20%	16V
C611	1-123-607-00	ELECT	0.1MF	20%	50V
C612	1-161-494-00	CERAMIC	0.022MF	30%	25V
C613	1-161-494-00	CERAMIC	0.022MF	30%	25V
C614	1-161-494-00	CERAMIC	0.022MF	30%	25V
C615	1-130-635-00	FILM	0.18MF	5%	50V
C616	1-123-351-00	ELECT	0.47MF	20%	50V
C617	1-123-607-00	ELECT	0.1MF	20%	50V
C618	1-123-359-00	ELECT	47MF	20%	35V
C619	1-123-351-00	ELECT	0.47MF	20%	50V
C620	1-123-607-00	ELECT	0.1MF	20%	50V
C621	1-123-607-00	ELECT	0.1MF	20%	50V
C622	1-101-005-00	CERAMIC	0.022MF		50V
C623	1-161-259-00	CERAMIC	10PF	5%	50V
C624	1-161-494-00	CERAMIC	0.022MF	30%	25V
C625	1-161-494-00	CERAMIC	0.022MF	30%	25V
C626	1-161-494-00	CERAMIC	0.022MF	30%	25V

ELECTRICAL PARTS

Ref.No.	Part No.	Description			
C627	1-123-356-00	ELECT	10MF	20%	16V
C901	1-101-004-00	CERAMIC	0.01MF		50V
CF201	1-527-968-71	FILTER, CERAMIC			
CF202	1-527-968-71	FILTER, CERAMIC			
CF203	1-527-968-71	FILTER, CERAMIC			
CF401	1-527-937-00	FILTER, CERAMIC			
CF402	1-527-981-00	FILTER, CERAMIC			
CT401	1-141-180-00	CAP, TRIMMER 15P			
CT404	1-141-171-00	CAP, TRIMMER 20P			
CT407	1-141-171-00	CAP, TRIMMER 20P			
CT408	1-141-171-00	CAP, TRIMMER 20P			
D201	8-719-107-57	DIODE 1S953-7			
D302	8-719-107-57	DIODE 1S953-7			
D303	8-719-103-57	DIODE 1S953-7			
D304	8-719-107-57	DIODE 1S953-7			
D305	8-719-107-57	DIODE 1S953-7			
D306	8-719-107-57	DIODE 1S953-7			
D401	8-719-912-27	DIODE KV1226			
D402	8-719-107-57	DIODE 1S953-7			
D501	8-719-200-02	DIODE 10E2			
D502	8-719-200-02	DIODE 10E2			
D503	8-719-511-20	DIODE S1VB20			
D504	8-719-910-52	DIODE HZ15-2L			
D505	8-719-910-65	DIODE HZ6B2L			
D506	8-719-913-02	DIODE HZ30-2L			
D507	8-719-107-57	DIODE 1S953-7			
D508	8-719-107-57	DIODE 1S953-7			
D509	8-719-107-57	DIODE 1S953-7			
D511	8-719-107-57	DIODE 1S953-7			
D512	8-719-107-57	DIODE 1S953-7			
D513	8-719-107-57	DIODE 1S953-7			
D601	8-719-107-57	DIODE 1S953-7			
D602	8-719-107-57	DIODE 1S953-7			
D604	8-719-107-57	DIODE 1S953-7			
D605	8-719-107-57	DIODE 1S953-7			
D606	8-719-107-57	DIODE 1S953-7			
D608	8-719-107-57	DIODE 1S953-7			
D609	8-719-107-57	DIODE 1S953-7			
D610	8-719-107-57	DIODE 1S953-7			
D611	8-719-107-57	DIODE 1S953-7			
D612	8-719-107-57	DIODE 1S953-7			
D901	8-719-901-52	DIODE SLP151B			
FE101	A-4344-029-A	(AEP,UK)...FRONT END, FM			
FE101	A-4344-031-A	(G-AEP)....FRONT END, FM			

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In each case, U : μ, for example:
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UPD···: μPD···

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ELECTRICAL PARTS

Ref.No.	Part No.	Description
IC201	8-759-812-31	IC LA1231
IC301	8-759-833-90	IC LA3390
IC401	8-759-812-45	IC LA1245
IC601	8-759-201-03	IC TD6109P
IC602	8-759-201-31	IC TC9300F-007
IFT201	1-404-400-00	TRANSFORMER, DISCRIMINATOR
IFT202	1-404-401-00	TRANSFORMER, DISCRIMINATOR
IFT401	1-404-413-00	TRANSFORMER, IF
J901	1-507-731-00	JACK, PIN 2P
L401	1-407-173-XX	MICRO INDUCTOR 220UH
L901	1-402-011-41	ANTENNA, FERRITE-ROD (LW/MW)
LCD601	1-806-643-00	DISPLAY PANEL, LIQUID CRYSTAL
LPF301	1-235-164-00	(AEP,G-AEP)...FILTER, LOW PASS
LPF302	1-235-164-00	(AEP,G-AEP)...FILTER, LOW PASS
PL901	1-518-511-00	LAMP, PILOT
PT901⚠	1-447-560-12	TRANSFORMER, POWER
Q201	8-729-671-14	TRANSISTOR 2SC710-14
Q202	8-729-671-14	TRANSISTOR 2SC710-14
Q301	8-729-245-83	TRANSISTOR 2SC2458
Q302	8-729-245-83	TRANSISTOR 2SC2458
Q501	8-729-103-33	TRANSISTOR 2SD1310
Q502	8-729-177-43	TRANSISTOR 2SD774
Q503	8-729-177-43	TRANSISTOR 2SD774
Q504	8-729-204-83	TRANSISTOR 2SA1048-GR
Q505	8-729-245-83	TRANSISTOR 2SC2458
Q506	8-729-245-83	TRANSISTOR 2SC2458
Q507	8-729-245-83	TRANSISTOR 2SC2458
Q508	8-729-245-83	TRANSISTOR 2SC2458
Q510	8-729-194-57	TRANSISTOR 2SC945-P
Q601	8-729-203-05	TRANSISTOR 2SK30A-GR3
Q602	8-729-203-05	TRANSISTOR 2SK30A-GR3
Q603	8-729-664-48	TRANSISTOR 2SC1362-48
Q604	8-729-664-48	TRANSISTOR 2SC1362-48
Q605	8-729-664-48	TRANSISTOR 2SC1362-48
Q606	8-729-664-48	TRANSISTOR 2SC1362-48
Q607	8-729-245-83	TRANSISTOR 2SC2458
R201	1-246-461-00	CARBON 330 5% 1/4W
R202	1-246-461-00	CARBON 330 5% 1/4W
R203	1-246-461-00	CARBON 330 5% 1/4W
R204	1-246-505-00	CARBON 22K 5% 1/4W
R205	1-246-505-00	CARBON 22K 5% 1/4W
R206	1-246-461-00	CARBON 330 5% 1/4W

ELECTRICAL PARTS

Ref.No.	Part No.	Description
R207	1-246-481-00	CARBON 2.2K 5% 1/4W
R208	1-246-461-00	CARBON 330 5% 1/4W
R209	1-246-505-00	CARBON 22K 5% 1/4W
R210	1-246-505-00	CARBON 22K 5% 1/4W
R211	1-246-461-00	CARBON 330 5% 1/4W
R212	1-246-481-00	CARBON 2.2K 5% 1/4W
R213	1-246-441-00	(AEP,G-AEP)...CARBON 47 5% 1/4W
R213	1-247-099-00	(UK).....CARBON 47 5% 1/4W F
R214	1-246-453-00	CARBON 150 5% 1/4W
R215	1-246-461-00	CARBON 330 5% 1/4W
R216	1-246-521-00	CARBON 100K 5% 1/4W
R218	1-246-501-00	CARBON 15K 5% 1/4W
R219	1-246-505-00	CARBON 22K 5% 1/4W
R220	1-246-484-00	CARBON 3K 5% 1/4W
R221	1-246-497-00	CARBON 10K 5% 1/4W
R222	1-246-505-00	CARBON 22K 5% 1/4W
R223	1-246-513-00	CARBON 47K 5% 1/4W
R225	1-246-449-00	(AEP,G-AEP)...CARBON 100 5% 1/4W
R225	1-247-107-00	(UK)....CARBON 100 5% 1/4W F
R229	1-246-521-00	CARBON 100K 5% 1/4W
R230	1-246-515-00	CARBON 56K 5% 1/4W
R301	1-246-449-00	(AEP,G-AEP)...CARBON 100 5% 1/4W
R301	1-247-107-00	(UK)....CARBON 100 5% 1/4W F
R302	1-246-513-00	CARBON 47K 5% 1/4W
R303	1-246-497-00	CARBON 10K 5% 1/4W
R304	1-246-519-00	CARBON 82K 5% 1/4W
R305	1-246-519-00	CARBON 82K 5% 1/4W
R306	1-246-425-00	CARBON 10 5% 1/4W
R307	1-246-473-00	CARBON 1K 5% 1/4W
R308	1-246-473-00	CARBON 1K 5% 1/4W
R309	1-246-425-00	CARBON 10 5% 1/4W
R310	1-246-481-00	CARBON 2.2K 5% 1/4W
R311	1-246-481-00	CARBON 2.2K 5% 1/4W
R312	1-246-485-00	CARBON 3.3K 5% 1/4W
R313	1-246-485-00	CARBON 3.3K 5% 1/4W
R314	1-246-497-00	CARBON 10K 5% 1/4W
R315	1-246-529-00	CARBON 220K 5% 1/4W
R316	1-246-477-00	CARBON 1.5K 5% 1/4W
R317	1-246-501-00	CARBON 15K 5% 1/4W
R318	1-246-473-00	CARBON 1K 5% 1/4W
R319	1-246-509-00	CARBON 33K 5% 1/4W
R320	1-246-497-00	CARBON 10K 5% 1/4W
R322	1-246-497-00	CARBON 10K 5% 1/4W
R323	1-246-529-00	CARBON 220K 5% 1/4W
R402	1-246-477-00	CARBON 1.5K 5% 1/4W

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- All resistors are in ohms.
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ELECTRICAL PARTS

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R403	1-246-449-00	(AEP,G-AEP)...CARBON 100 5% 1/4W
R403	1-247-107-00	(UK).....CARBON 100 5% 1/4W F
R404	1-246-465-00	CARBON 470 5% 1/4W
R405	1-246-441-00	(AEP,G-AEP)...CARBON 47 5% 1/4W
R405	1-247-099-00	(UK).....CARBON 47 5% 1/4W F
R406	1-246-497-00	CARBON 10K 5% 1/4W
R407	1-246-442-00	CARBON 51 5% 1/4W
R408	1-246-497-00	CARBON 10K 5% 1/4W
R409	1-246-449-00	CARBON 100 5% 1/4W
R410	1-246-485-00	CARBON 3.3K 5% 1/4W
R411	1-246-489-00	CARBON 4.7K 5% 1/4W
R413	1-246-521-00	CARBON 100K 5% 1/4W
R414	1-246-521-00	CARBON 100K 5% 1/4W
R415	1-246-521-00	CARBON 100K 5% 1/4W
R416	1-246-443-00	CARBON 56 5% 1/4W
R417	1-246-545-00	CARBON 1M 5% 1/4W
R419	1-246-477-00	CARBON 1.5K 5% 1/4W
R420	1-246-497-00	CARBON 10K 5% 1/4W
R421	1-246-443-00	CARBON 56 5% 1/4W
R501	1-246-480-00	CARBON 2K 5% 1/4W
R502	1-246-485-00	CARBON 3.3K 5% 1/4W
R504	1-246-509-00	CARBON 33K 5% 1/4W
R505	1-246-489-00	CARBON 4.7K 5% 1/4W
R506	1-246-527-00	CARBON 180K 5% 1/4W
R507	1-246-497-00	CARBON 10K 5% 1/4W
R508	1-246-497-00	CARBON 10K 5% 1/4W
R509	1-246-529-00	CARBON 220K 5% 1/4W
R510	1-246-521-00	CARBON 100K 5% 1/4W
R511	1-246-497-00	CARBON 10K 5% 1/4W
R512	1-246-497-00	CARBON 10K 5% 1/4W
R513	1-246-521-00	CARBON 100K 5% 1/4W
R514	1-246-497-00	CARBON 10K 5% 1/4W
R515	1-246-497-00	CARBON 10K 5% 1/4W
R516	1-246-497-00	CARBON 10K 5% 1/4W
R517	1-246-493-00	CARBON 6.8K 5% 1/4W
R518	1-206-641-00	METAL OXIDE 110 5% 2W F
R519	1-246-457-00	CARBON 220 5% 1/4W
R520	1-246-521-00	CARBON 100K 5% 1/4W
R525	1-246-513-00	CARBON 47K 5% 1/4W
R601	1-246-519-00	CARBON 82K 5% 1/4W
R602	1-246-514-00	CARBON 51K 5% 1/4W
R603	1-246-514-00	CARBON 51K 5% 1/4W
R604	1-246-491-00	CARBON 5.6K 5% 1/4W
R605	1-246-489-00	CARBON 4.7K 5% 1/4W

ELECTRICAL PARTS

Ref.No.	Part No.	Description
R606	1-246-491-00	CARBON 5.6K 5% 1/4W
R607	1-246-545-00	CARBON 1M 5% 1/4W
R608	1-246-545-00	CARBON 1M 5% 1/4W
R609	1-246-489-00	CARBON 4.7K 5% 1/4W
R610	1-246-497-00	CARBON 10K 5% 1/4W
R611	1-246-501-00	CARBON 15K 5% 1/4W
R612	1-246-459-00	CARBON 270 5% 1/4W
R613	1-246-511-00	CARBON 39K 5% 1/4W
R614	1-246-491-00	CARBON 5.6K 5% 1/4W
R615	1-246-467-00	CARBON 560 5% 1/4W
R616	1-246-489-00	CARBON 4.7K 5% 1/4W
R617	1-246-493-00	CARBON 6.8K 5% 1/4W
R618	1-246-467-00	CARBON 560 5% 1/4W
R619	1-246-489-00	CARBON 4.7K 5% 1/4W
R620	1-246-504-00	CARBON 20K 5% 1/4W
R621	1-246-460-00	CARBON 300 5% 1/4W
R622	1-246-480-00	CARBON 2K 5% 1/4W
R630	1-246-489-00	CARBON 4.7K 5% 1/4W
R631	1-246-489-00	CARBON 4.7K 5% 1/4W
RT201	1-226-238-00	RES, ADJ, CARBON 50K
RT301	1-228-505-00	RES, ADJ, METAL GLAZE 10K
RT302	1-226-238-00	RES, ADJ, CARBON 50K
S1	1-554-266-00	SWITCH, ROTARY SLIDE (BAND SELECTOR)
S501	1-552-174-00	SWITCH, PUSH (TUNING -)
S502	1-552-174-00	SWITCH, PUSH (TUNING +)
S503	1-552-174-00	SWITCH, PUSH (STEREO/MUTING)
S504	1-552-174-00	SWITCH, PUSH (MEMORY)
S505	1-552-174-00	SWITCH, PUSH (1)
S506	1-552-174-00	SWITCH, PUSH (2)
S507	1-552-174-00	SWITCH, PUSH (3)
S508	1-552-174-00	SWITCH, PUSH (4)
S509	1-552-174-00	SWITCH, PUSH (5)
S901	1-554-539-00	SWITCH, PUSH (POWER SWITCH)
T301	1-235-126-00	(G-AEP)...ENCAPSULATED COMPONENT
T401	1-406-072-00	COIL, MW OSC
T406	1-406-069-00	COIL, OSC
TM901	1-536-663-00	(AEP,UK)....TERMINAL BOARD (ANTENNA)
TM901	1-536-666-21	(G-AEP).....TERMINAL BOARD (ANTENNA)
XT601	1-527-995-00	VIBRATOR, CRYSTAL

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